

Species Tag:	19004	Species Name:	H_3O^+
Version:	1		Hydronium ion,
Date:	Jan. 1996		$\nu_2 = 0, 1$
Contributor:	H. M. Pickett M. L. Delitsky		
Lines Listed:	420	$Q(300.0) =$	523.7663
Freq. (GHz) <	9999	$Q(225.0) =$	329.2979
Max. J:	16	$Q(150.0) =$	175.2980
LOGSTR0=	-10.0	$Q(75.00) =$	62.9188
LOGSTR1=	-10.0	$Q(37.50) =$	26.7436
Isotope Corr.:	0.0	$Q(18.75) =$	15.8847
Egy. (cm^{-1}) >	0.0	$Q(9.375) =$	11.5358
$\mu_a =$		A =	337388.49
$\mu_b =$		B =	A
$\mu_c =$	1.44	C =	181374.00

The two inversion states of the ground state and the $\nu_2 = 1$ state are included in this calculation. The vibrational designation 0, 1, 2, and 3 are the 0^+ , 0^- , 1^+ , and 1^- states of ν_2 , respectively. The values of C and D_K cannot be determined and are fixed to those of M. Gruebele, M. Polak, and R. J. Sakally, 1987, *J. Chem. Phys.* **87**, 3347. The experimental measurements were reported by D. J. Liu and T. Oka, 1985, *Phys. Rev. Lett.* **54**, 1787; D. J. Liu, N. N. Haese, and T. Oka, 1985, *J. Chem. Phys.* **82**, 5368; M. Bogey, C. Demuynck, M. Denis, and J. L. Destombes, 1985, *Astron. Astrophys.* **148**, L11; G. M. Plummer, E. Herbst, and F. C. DeLucia, 1985, *J. Chem. Phys.* **83**, 1428.

The dipole moment was calculated by P. Botschwina, P. Rosmus, and E. A. Reinsch, 1984, *Chem. Phys. Lett.* **102**, 299. The dipoles used are $\mu_{01} = 1.44\text{D}$, $\mu_{12} = 0.673\text{D}$, $\mu_{03} = 0.302\text{D}$, and $\mu_{23} = 1.10\text{D}$.